

I claim:

1. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil, the capacitive probe comprising:

a base portion;

a fastening device by which the base portion of the capacitive probe may be removably

5 attached to an ignition coil housing of an ignition coil under test;

a positioning member adapted to move along at least one axis relative to the base portion,

an arm connecting the positioning member to at least one of the base portion and the fastening device; and

a plurality of capacitive sensors arranged on the positioning member, each capacitive

10 sensor having an electrical lead connected thereto,

wherein at least one of the positioning member and arm are adapted to move along or about at least one axis relative to the base portion.

2. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 1, wherein the plurality of capacitive sensors consists of a first capacitive sensor and a second capacitive sensor.

3. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 2, wherein the first capacitive sensor and second capacitive sensor comprise metallizations having different areas.

4. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 3, wherein an area of a first capacitive sensor associated with a positive going output of the ignition coil under test is larger

than an area of a second capacitive sensor associated with a negative going output of the ignition
5 coil under test.

5. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 2, wherein at least one of the first capacitive sensor and second capacitive sensor comprises a metal plate.

6. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 2, wherein at least one of the positioning member and arm are adapted to move along or about at least one axis relative to the base portion.

7. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 6, wherein the arm comprises a curvilinear plate.

8. A capacitive probe for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil according to claim 2,

wherein the first capacitive sensor is associated with a positive going output of the ignition coil under test and the second capacitive sensor is associated with a negative going

5 output of the ignition coil under test, and

wherein a capacitor is disposed to connect at least one of the first capacitive sensor and the second capacitive sensor to at least one of the positioning member and the an arm to substantially equalize an amplitude between the first capacitive sensor and the second capacitive sensor.

9. A diagnostic system for analyzing the operation of an engine, the diagnostic system comprising:

a capacitive probe for simultaneously detecting an amplitude of a first and a second electric near field present proximate a hybrid or DIS ignition coil housing, the capacitive probe comprising a fastening device configured to removably attach the capacitive probe to the ignition coil housing and a body, the body bearing a first signal detector and a second signal detector,

wherein each of the first signal detector and a second signal detector are arranged adjacent a location of a respective one of the first and second electric near fields for detecting an amplitude of the respective electric near field, and

wherein each signal detector outputs a signal representative of a respective electric near field.

10. A diagnostic system for analyzing the operation of an engine according to claim 9, the diagnostic system further comprising:

a signal processor for receiving the signals output from the capacitive probe and processing the signals.

11. A diagnostic system for analyzing the operation of an engine according to claim 10, the diagnostic system further comprising:

a reporting system for receiving signals processed by the processing system and generating a physical representation of the processed signals.

12. A method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil housing, comprising the steps of:

providing a capacitive probe comprising a fastening device configured to removably attach the capacitive probe to the ignition coil housing and a body, the body bearing a first signal detector and a second signal detector;

attaching the capacitive probe to the ignition coil housing;

positioning the first signal detector proximate a position of the ignition coil housing adjacent a location of a first electric near field;

positioning the second signal detector proximate a position of the ignition coil housing
10 adjacent a location of a second electric near field;

simultaneously detecting the first electric near field using the first signal detector and detecting the second electric near field using the second signal detector, and

outputting from each of the first signal detector and second signal detector a signal representative of a respective one of the first and second electric near field.

13. A method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil housing according to claim 12, further comprising the step of:

processing a signal output by at least one of the first signal detector and second signal
5 detector using at least one of a signal processor and amplifier.

14. A method for simultaneously detecting a plurality of electric near fields present proximate a hybrid or DIS ignition coil housing according to claim 12, further comprising the step of:

reporting at least one signal output by the first signal detector and second signal detector
5 to at least one of a display device, a printing device, communication device, and a electronic storage device.